1967

In Review

Page 3

COMPUTERWORLD

The Newsweekly for the Computer Community

Weekly Newspaper – Second Class postage paid at Boston, Mass.

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People Don't Like Computers

Page 2

Interface For IBM 1130 Systems Gives It New On-Line Capability

HARTSDALE, N.Y. – An interface system that operates on the Storage Channel of the 1130, and allows teletypewriters, 1050s, etc. to use any of the standard 1130 Type 1 or Type 2 software is being demonstrated by Honig Time Sharing Associates here this week. It allows up to 15 terminals to be connected to a single 1130 over standard voice grade lines, and expands the capabilities of the 1130 so that it provides what Robert Bearden of Honig told COMPUTERWORLD was "a true on-line and terminally-oriented system."

Time Sharing Use

The interface costs about $12,000, and options allow a real-time clock to be connected for time-sharing use. The terminals presently envisaged are IBM 2741s, 1050s, or teletypes. At present only the demonstration unit which is being used to check out the system is available, but delivery of units is being quoted at 30 days. No special modifications are needed to the 1130 system, except for the provision of the Storage Access Channel, feature 7490.

Literature about the new product is being prepared.

1st Time For 360s

COMMON Arranges DOS Courses

IBM has agreed to run a 5-day course on the internal programming of the 360 Disk Operating System in conjunction with the Chicago meeting of COMMON next April. A maximum of 28 people can be enrolled, and applications will be accepted from people who are familiar with DOS, whether or not they are from installations which are themselves members of COMMON.

This present course is the first which has been offered to non-IBMers, and is intended to test whether or not sufficient users can be interested in the subject and are willing and able to spend the time involved.

In the past such courses were offered by IBM on computers like the 1620. These ran for a day immediately preceding the meetings. When the 360 came along similar courses were not offered as the data which had to be covered could not be compressed into the single day.

For further details, please write the Chairman of COMMON's DOS Project, Richard Pratt, Data Corporation, 7500 Old Xenia Pike, Dayton 32, Ohio.

Real-Time Answers From New Analog

PRINCETON, N.J. – In an unusual twist an analog computer has been used to effectively give a real-time service for investors. The computer, which costs under $500 and sits on a desk top, computes the effect of changes in stock market prices, Dow Jones averages, etc. These are inserted using dials on the front of the computer. An output dial guides the investor as to the advisability of making possible moves.

Management Information Services, which offers the service, also uses an NCR 315 at a Princeton service center to put out weekly listings on over 2,000 stocks. However, the same formulas are built into the analog computer, which therefore can effectively give the investor "real-time" service – without a terminal.

For Telecommunications

BTAM Simulator Gives Easier Check-Out

NEW YORK, N.Y. -- Users of IBM's Disk Operating System will be able to test telecommunications programs before the telecommunications hardware is installed, according to Programming Sciences Corporation.

The trick is in the use of a simulator which interfaces between the telecommunications—oriented user program and the user – bypassing all the normal communications with DOS/BTAM (the IBM standard software). Total simulation is said to be performed with regard to both DOS/BTAM and the user terminal network. This will allow debugging to be completed without the actual use of terminal hardware.

Programming Sciences intends to market the simulator as a proprietary program.

The simulator program will reside in storage with the problem program, and will communicate with the program through the execution of linkage routines substituted for the actual IBM System/360 DOS/BTAM macros.

Four Times As Many

3,100 To Sit For CDP Exam In 1968

Over 3,100 candidates are planning to take the 1968 examination for the Certificate in Data Processing, due to take place next February. This is more than four times the number of candidates who took the 1967 examination, and represents a complete reversal of the recent trend to smaller and smaller numbers. DPMA spokesmen were jubilant as they told COMPUTERWORLD of the figures for the current examination, and seemed more assured than ever of the place of the Certificate in the field of computer qualifications.

Other Developments

In other developments the DPMA was making its operations the center of a true professional body. New items before the current meeting of the executive included the approval of a draft code of ethics, and consideration as to whether, and how, a certificate holder could be "defrocked" – that is, have his certificate revoked for professional misconduct.

The large number of applicants may have occurred because the eligibility requirements were eased for the 1968 examination.

New Academic Requirements

The new policy on academic requirements is as follows.

† Persons who were eligible to take the examination on February 12, 1965 (by virtue of having already completed three years of data processing experience by that date) will be allowed to sit for the examination now without satisfying the academic requirements.

† Candidates must have completed at least two years (60 semester-hours) from accredited college-level institutions.

† In lieu of the two required data processing courses, one full-time year of additional data processing experience may be substituted for each three semester-hour data processing course. There may be no substitution of experience for the two year college requirement.

† As of 1972, the two-year college requirement will be increased to four years or the Bachelors degree.

Previously, all persons who had acquired three years of data processing experience prior to February, 1965 were exempt from academic requirements, but these same persons had their exempt status revoked if they didn't take the examination on or before Feb. 1965.

NCR Adds Displays To Its Computers

A multi-million dollar contract announced last week brought these display units into the standard NCR 315 line. For further details see Page 8.

EDP Scholarships For HS Students

WALTHAM, MASS. – The Control Data Institute, recently opened here and about to enroll its 100th student, has announced a scholarship program for local high-school students. William Michaels of the Institute told an audience of high-school counselors that the specific purpose of the program was to try to destroy the idea that a college degree is necessary for a computer programmer. "We do not disgree with the idea that a degree is valuable – but it certainly is not necessary," he said.

The audience seemed willing to hear him, but were not all convinced by the announcement. Apparently a number of them had had "unfortunate" experiences with other equivalent promises and they intended to wait and see. However, arrangements to make the scholarship known in the area schools were well under way shortly after Mr. Michaels had finished speaking.

The actual program consists of full scholarships, worth over $1500 each, to the Institute's 600-hour course in Programmer Technology. There will be a minimum of five scholarships awarded to this year's high school graduates – and more if there is good response to the offer.

'Much Faster' Info Retrieval For 360s Unveiled

CAMBRIDGE, MASS. – A new high-speed information retrieval software system has been announced by Computer Corporation of America. Called the Model 101 and costing $25,000, the system is designed for use with IBM System/360 hardware using disk packs as the data storage medium. At least 65K memory is necessary. Input and Output is handled by Cobol-compatible magnetic tape.

The Model 101 employs new software technology, developed by Computer Corporation of America, to achieve retrieval speeds which are orders of magnitude faster than those obtainable by conventional techniques. Answers to complex queries are provided in seconds rather than minutes to hours.

Bench Marks Available

Dr. Thomas Marill, CCA's president, told COMPUTERWORLD today that bench mark details will be included in the brochure which is currently being printed. He felt that this will allow potential users to really effectively compare it with some of the other proprietary software packages which are available for similar systems.

The techniques used to improve the speed of operation include coding the data on the disk pack in a concentrated form. This effectively means that a user is more than compensated for the room taken on the disk by special systems controls.

Present Development and Cost

The package is being offered complete with an introduction on the customer's site of up to one week. No systems have yet been sold, but two demonstrations have taken place. One person attending a demonstration is reported as saying, "I was trying to time the program – but I happened to blink!"

Further details, including the bench mark timings, will be published in an upcoming issue of COMPUTERWORLD.

The Computer Development of the Year?

. . . See Next Week's COMPUTERWORLD

Editorials

Quite A Revolution

It is now the end of 1967, and time to review its progress. The detailed review is found on other pages of this issue — and in any case is too long for these editorial columns. However, some reference should be made to the altogether historic importance of the previous year.

What has happened is completely revolutionary. Computing will never look the same again as it did in the beginning of 1967. The computing opportunities have increased out of recognition, as displays, multi-access systems, and color have come forward. No longer are we insulated from the fears and worries of the outside world in our nice womb-like computer rooms. Now we are dealing directly every day with people in all walks of life — and we must be ready to treat them properly.

Dealing with these increasing responsibilities, we also have many increasing opportunities. Previously operating systems, file management systems, and certainly hardware were items which were impossible for ordinary computer people to handle, and had to be left to the great manufacturers. Now we find ourselves being offered more and more evidence that they are within the standard competence of ordinary EDP people. From the Gulf of Mexico to the northern woods of Oregon, from electronics centers of Los Angeles and Boston, and from all places in between, major developments have been taking place in the comparatively small firms. And they have been very worthwhile.

This change from the near monopoly of the large suppliers to the inclusion of the many other sources is undoubtedly most significant. In 1968 we will have to handle not a few, but many potential suppliers of our wants, if we are to give the best available service to our users.

That's quite a revolution, isn't it?

Reversing The Trend

We were delighted with the large number of candidates who have applied to take the certificate in data processing examination next year, Over 3,100! More than four times as many as took it last year! What a difference.

Thanks for the increase must be given to the Certificate Ambassadors who spread the news. Thanks must also be given to Calvin Elliott's team at the headquarters which designed and guided the program through this very important critical period.

The End Of Volume 1

This is the last issue of Volume I of COMPUTERWORLD. It is time to say thank you to you our readers. COMPUTERWORLD started last June, and as everyone knows, had the normal standard of snags, tribulations and misunderstandings. That is part of what goes into starting a new publication.

It was not at all clear as to whether COMPUTERWORLD was to be welcomed. There was no weekly newspaper in the field, but the field had got on very well without it. We felt that there was a need, but we did not know. You have told us.

You have told us through your subscriptions, and through your complaints. Your letters to the editor have reflected your opinions on matters and we have been very appreciative of them. Some have been published, most haven't. After all, space is limited.

But one thing you did tell us, loud and clear, was that we were wanted. And for that, at this happy season, we thank you.

Merry Christmas.

We hope to give you better service, better, fresher news, and many interesting new features in, the New Year.

A Year-End Round-Up

Why People Don't Like Computers

1967 saw a worsening of the position of the computer in the eyes of the general public. Distrust of computers became more widespread and concentrated on two areas- Computerized Decision-Making, and Privacy.

Computerized Decision-Making

Anyone who looks at the volumes of data in any of the controversial cases where computers have been involved in justifying the decisions will realize that the volume of the data is beyond anything that an outside investigator can be expected to work with. He is often left to accept on faith rather than on intellectual conviction. If, however, he does not accept on faith, he is in a particularly awkward situation. The statistics are apparently complete, apparently convincing. But they are not *standard* statistics *They have been created specifically to support a line of argument*, and a little voice somewhere says: "I wonder where the other set of statistics is which would have been presented if it had become necessary to support another line of argument."

This is a serious flaw in the computer age. In the past there have been only comparatively few statistics, and it has not been practical to produce them specifically for a particular argument. They have been the general purpose statistics which were usually available to anyone and therefore were known not to be biased. This is no longer so. This fact is probably at the bottom of Congressional malaise with computerized decisions.

Privacy

Congress seems unlikely to trust the electronics industry to maintain an adequate security upon data which it has innocently gathered. It seems to assume that if data is available, it will be used in the worst possible manner.

There is some basis for this. The operations of the data banks which are probably best known to most Congressmen are those which presently support specific industries. With the airlines reservations systems, the experience is good. People can trust the data. The same is perhaps not so true of the book clubs, record clubs, etc. Basically, the experience here is bad. People normally find it hard to stop that apparently automatic (and therefore presumably computerized) series of letters which end up threatening their credit. They have found themselves with goods which they believe they have not ordered. And they have blamed computers.

Good Points

However, not all the news was bad, and as the year ended a few good signs indicated that a serious effort was being made by various people to improve the overall-balance.

Two of these good signs were the determined and successful publicity campaign put on during the Fall Joint Computer Conference; and the equally publicity-conscious scholarship program started by Control Data Institutes.

During the Fall Joint, television programs featuring computer personalities were so successful that plans are presently being made to bring the positive side of computers home to the public - right in their homes.

And, at the other end of the country, an offer of scholarships to Boston's negro slums - as well as to its well-to-do high schools seemed equally to be carrying an effective pro-computer message.

Unfortunately, these positive signs were practically drowned out by the fears and the complaints. The possibility of the community looking to computers as useful allies in the years ahead seemed remote. Hopefully, 1968 — and the actions of ALL the members of the computer community during that year — will change this.

Letters To The Editor

To the Editor:

I have just spent a whole night lying awake, scared stiff, with every light in the house on. I don't know whether this is in your department, but I am sure other wives of "EDPeople" have run up against the same sort of situation I encountered last night. Computers keep strange hours, and we wives are home alone during those hours.

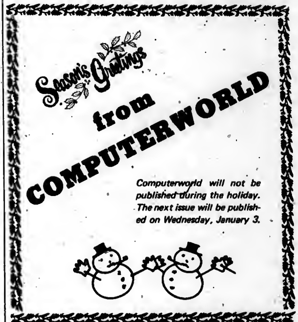
Last night I had invited a friend to keep me company. The doorbell rang and I pushed the intercom without thinking, because I expected her. When I opened the door a man was there, asking if I was Joanne Fletcher. The sign on our bell says J. Fletcher, and my name is Jean. I said no, he had made a mistake, and closed the door. A few minutes later, he was back and he knocked until I opened the door. (I did keep the chain on it.) He said he thought maybe he had my first name wrong, but I was the person he was looking for. I said we were the only Fletchers in the building, suggested that he ask the superintendent about it, and closed the door.

A very simple, harmless incident, I hope. But I was terrified all night that he would be back, and I know the locks we have won't deter anyone who really wants to get in. I don't know what the man wanted—to rob the apartment, to see if I lived alone, or what.

It strikes me that these kind of annoyances, and telephone calls, must be a real problem for wives of men who work with computers, and therefore, a matter of concern to the men. Perhaps you have some suggestions on avoiding these problems.

Jean Fletcher
Minneapolis, Minn.

Ed. This is quite a problem. How do other wives (and husbands) handle this? Sweep it under the rug — or what?



Computerworld will not be published during the holiday. The next issue will be published on Wednesday, January 3.

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TM Reg. U.S. Pat. Off.

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Computerworld Looks Back At 1967

In The Central Computer Room

Computers . . .

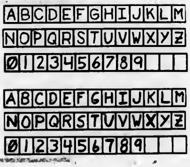
Many new but no revolutionary computers were featured in COMPUTERWORLD during 1967. Two of them were the Burroughs 3500 (upper photograph) and the Honeywell 1250 (lower photograph). Both systems featured multi-programming and random access peripherals.

. . . Supplies . . .

The business of computer-room supplies also attracted many more manufacturers during the year, with four or five new disk-pack suppliers leading the field. One such firm was Thin Films Inc., who produced a plated disk pack. COMPUTERWORLD covered them all as their products came into use.

. . . and Peripherals

Peripherals, such as the new Univac disks for the 9200/9300s (right), continued to come from the manufacturers. But many outside suppliers also started offering plug-for-plug compatibility. One such was Ampex Corporation, whose tape unit is shown in the lower photograph.



COMPUTERWORLD also covered the new peripherals which introduced new capabilities to the computer room. One was the 2" tape unit, designed as a dumping tape for disk-packs, from Control Data (above). Another was the handprinting reader from Recognition Equipment which can handle all the letters – and then some.

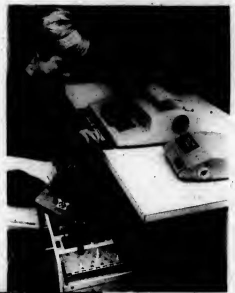
CW - 1967

Away From The Center

You need data transmission systems to take your data to-and-from the central computers. Here the news was not so much of new equipment, but of successful operation. COMPUTERWORLD carried such stories – including two about how the Mohawk terminals (above) had worked during their first year's operations.

Communication Lines . . .

. . . to the Remote Terminals . . .



And the number of types of remote terminals themselves were also proliferating. Communitype Corp.'s (above) looked like a familiar secretary's typewriter – while displays and keyboards became more familiar and more powerful in stockbrokers' offices (see left).

THE NEW WORLD OF INVESTING...

The traditional student use continued. The upper photograph shows a physics student hard at work – and miles from the SDS 940 system he is using; while the lower photograph shows a new display introduced during the fall – the IDIIOM from Information Displays.

. . . some of which now have computers inside them!

The IDIIOM, like more and more displays, terminals, concentrators and deconcentrators, included actual small general purpose computers to handle some tasks such as polling. Two examples of the types of computers which are included are the PDP 8/S (left) and the Hewlett-Packard 2115A (right).

CW - 1967

One of the original approaches to the servicing problem reported in COMPUTERWORLD during the year wss General Electric's new Instrumentation snd Control Service Business Section, which wss set up to offer servicing for computer components across the country. The photograph shows one of GE's service plants.

Which Brings Up The Servicing Problem

BUT We Didn't Ignore The Software

Over A Hundred File IV Management Systems

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'or urgent one-time re

IBM Improves Software

hen executed as s normal DOS or OS/360 jol
nd edits and verifies the entries. If a

Offers New Hardware

COBOL, RPG Bested By New Langu

A new computer la
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resen

CSC Tackles Largest Conversion Market

EL SEGUNDO, CALIF. - Compu

Exodus II Announced For 1401 To 360

Exodus II converts IBM 1401
nd Symbolic

Any Good Programs To Sell?

Software Marketing Firm Commences Operations

Offers 7010 Emulator

A rewritten version of IBM's

...Or The People

Whether or not they are EDPeople. The upper photograph shows Mayor Basbas, of Newton, Mass., trying out the vote-recorder used there during the November elections. The lower photograph shows the incoming SHARE President and his executive committee, who have to grapple with the problems involved with the growing size and complexity facing thst voluntary organization.

FOXBORO OPPORTUNITIES ARE GREAT IN '68

If personal growth is the name of your game, why not pley it with the best in tha business, Foxboro -- specialists in process control. We're non-defense, growing et a great rete, end offering career-building opportunities no one else can match. Here are just e few of them:

DIGITAL PROJECT ENGINEERS

BSEE with training in computer technology. At least 2 years experience in computer application with knowledge of logic design, programming and proven ability as project engineer on a computer system interface design.

SYSTEMS PROGRAMMERS

Engineering, Scientific, or Mathematical degree with machine language programming experience in the command and control, scientific, or industrial fields. Real time and/or share time experience highly desirable in the following areas. Batch Control, Direct Digital Control, Multi-level Programming, Supervisory Control and Scientific Programming.

DIGITAL APPLICATION SERVICE SPECIALISTS

Minimum 2 years technical schooling in digital computers and electronics. Will attend supplier sponsored general purpose digital computer maintenance training school. Require logic, semiconductor, programming and maintenance. Will have on-site responsibility for installation, maintenance and trouble shooting of the complete digital portion of the system including main frame, input/output equipment, tape reader/punch, output writer, A/D converters, etc.

SENIOR SUPPORT ENGINEERS

Associate degree in electronics or equivelent formal training with a minimum of 5 years as a Digital Checkout or Field Service Engineer. Background to include experience on High Speed Core memories and attendance at a major Computer Manufacturer's Maintenance School. Desire technical writing and instructor ability. Will perform Digital Systems test, checkout and integration using software routines, checkout procedures and simulation equipment. Will act as a Digital Checkout Instructor and be required to write checkout training lesson plans and procedures.

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$ $ FINANCIAL MATTERS $ $

LOS ANGELES, CALIF. – *Digitek Corp.* announced that preliminary results for the second quarter of fiscal 1968 ended Nov. 30, indicated net income of $18,300 on sales of $140,000 as compared with a loss of $446,969 on sales of $123,458 for the like quarter a year ago. Earnings of $.01 a share in the first quarter grew to $.05 a share in the second quarter.

HAWTHORNE, CALIF. – Agreement in principle has been reached for the merger of *Electronic Memories, Inc.*, and *Electralab Electronics Corp.* Electralab will continue to operate under existing management as a wholly-owned subsidiary of EMI.

NEW YORK, N.Y. – *General Aniline & Film Corp.* reported that its net income for 1967 will approximately equal last year's restated $1.13 per share and that the company will achieve record sales. Company president and chairman, Dr. Jesse Werner, said sales of business systems accounted for $48 million of the total restated sales of $484 million in 1966.

BEDFORD, MASS. – *EG&G, Inc.* announced that it has agreed to acquire *Cambridge Systems, Inc.*, a research and instrument manufacturing firm located in Newton, Mass. The transaction will involve an exchange of EG&G common stock for all outstanding stock of the privately held company. It will function as a wholly owned subsidiary of EG&G, and no changes in organization or management are contemplated.

HAWTHORNE, CALIF. – *Electronic Memories, Inc.* has given notice that effective immediately prior to the opening of business on December 5 the conversion price of EMI 4-¾% Convertible Subordinated Debentures due 1987 has been adjusted, from $40 to $39 per share of common stock. The change resulted from the issue of 323,775 shares of common stock in connection with the acquisition of WEMS, Inc. by EMI, on December 4.

NASHUA, N.H. – Sanders Associates announced record sales and earnings for the first quarter of fiscal 1968. Net sales for the quarter ended Oct. 31 amounted to $36.7 million, and earnings after taxes came to more than $1.2 million. The current sales figure represents a 45% increase over the $25.2 million figure for the like period last year. Net earnings increased to 64% over the previous quarter's $769,000.

WABASH, IND. – Wabash Magnetics Inc., manufacturers of electronic components and magnetic tape, plans to acquire Peripherals, Inc., Phoenix-based manufacturer of equipment for certifying computer memory disks. The acquisition, subject to approval by Wabash directors, will be in exchange for 300,000 shares of a new preferred stock with a current market value of about $5.3 million.

How They Moved Last Week

NEW YORK STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
Addressograph-Multigraph	73 1/2	46 7/8	73 3/8	71	71 3/8	- 3 5/8	- 2.23
American Research	195	37 3/4	193	168 1/2	186 1/8	+15 1/4	+ 8.92
Ampex Corp.	40 3/4	22 3/4	37 7/8	35	35	- 2 1/2	- 6.47
Burroughs	174 1/4	80 7/8	167 1/2	163 1/8	163 1/4	- 2 7/8	- 1.74
Collins Radio	114 7/8	33	98 1/2	93	96 1/2	+ 3	+ 3.21
Control Data	163 3/8	33 1/2	159 3/8	148 1/8	150 3/4	- 7 1/4	- 4.89
Electronic Associates	30 1/4	16 3/4	25 3/8	21 1/8	23 5/8	+ 3 7/8	+ 8.62
General Electric	113 7/8	82 1/2	101 1/8	95 7/8	96 1/4	- 4 1/8	- 4.11
Honeywell	117 7/8	63 1/2	115 7/8	106 1/2	106 1/8	- 4 1/4	- 3.46
IBM	640	342 1/2	640	614	617 1/4	- 7 1/4	- 1.32
Litton	120 1/8	79 1/2	114 3/4	108 1/4	112	+ 2 1/2	+ 2.28
Nat Cash Register	136 5/8	67 1/8	136 5/8	129	134	- 1/2	- 0.37
RCA	136	110 1/4	133	130 1/2	121 3/4	- 3/4	- 1.35
Raytheon	117	48	115 7/8	106	106 3/4	- 7	- 6.35
Sanders	77 1/4	37 5/8	76 3/4	72 1/4	72 5/8	- 1/8	- 0.17
Scientific Data	152 3/4	70 1/8	152 3/4	141	145	+ 2	+ 1.40
SCM	63 1/4	43 1/2	61	55 1/8	55 3/8	- 3	- 5.16
Sperry Rand	65 1/8	28 1/8	65 1/8	59 7/8	61 7/8	+ 1	+ 1.32
NYSE COMPUTER STOCK AVERAGE						- 2.01	- 0.76

AMERICAN STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
Audio Devices, Inc.	30 3/8	20	24 5/8	20 3/4	24	+ 1 1/4	+ 7.87
Automatic Data Processing	68 1/2	41 1/2	68 1/2	59 3/4	61 3/8	+ 4 3/8	+ 7.86
Calcomp	45 5/8	34	45 3/8	34 5/8	40 5/8	+ 3 1/4	+16.84
Computer Applications	47 3/8	14	47 3/8	40 5/8	42 5/8	+ 7/8	+ 2.10
Computer Sciences	67 5/8	18	67 5/8	52 1/2	62 1/8	+ 8 5/8	+16.12
Digital Equipment Corp	156	29 3/8	156	137	146	+ 4 1/4	+ 3.00
GC Computer Corp.	41	23 1/4	36 5/8	30 3/8	34 5/8	+ 5 1/4	+17.67
Leasco	135 1/4	31 5/8	135 1/4	114 1/2	114 3/4	+12	+10.46
Levin-Townsend Computer Corp.	67 1/2	10 7/8	67 1/2	60 3/8	62	+ 4 5/8	+ 8.04
Milgo Electronics	15 5/8	5 1/8	12 7/8	10 5/8	12	+ 3/8	+ 5.51
Mohawk Data Sciences	198 1/2	151 5/8	198 1/2	183	193 1/8	+ 6 1/2	+ 3.48
Plenolog Research	80	16 5/8	79 1/4	78 3/8	79	+ 1/8	+ 0.31
Potter Instrument	37 3/8	13 1/8	36 5/8	32 1/2	35 1/4	+ 2 1/4	+ 6.72
Randolph Computer Corp.	52 7/8	32 1/4	52 7/8	43 1/4	48 5/8	+ 6 1/8	+14.41
AMEX COMPUTER STOCK AVERAGE						+ 4.49	+ 7.75

OVER-THE-COUNTER	1967 High Bid	1967 Low Bid	Friday Bid	Friday Asked	Last Friday Bid	Week Net Change Bid	Week % Change Bid
Applied Data Research	30	7 1/8	28	30	29	- 1	- 3.48
Bolt, Beranek & Newman, Inc.	30	6 1/4	21 3/4	22 3/4	22 1/2	- 3/4	- 3.33
Computer Usage	72	20 1/4	72	75	62	+10	+16.13
Cyber-Tronics	17 1/2	4 1/4	15 1/2	16 1/4	13 7/8	+ 1 5/8	+11.71
Data Products	23 3/8	3 1/2	23 7/8	21 1/4	21 7/8	+ 1	+ 4.37
Digitronics	19 1/4	4	18 1/2	19 1/4	18 1/2		
DPA, Inc.	18 1/4	4 1/4	13 1/4	13 1/4	9	+ 4 1/4	+47.22
Electronic Memories	56 1/2	12 3/4	46	47	50 1/4	- 4 1/4	- 8.46
Fabri-Tek	15 3/4	4	11	11 1/2	11 1/4	- 1/4	- 2.22
LMC Data, Inc.	13 5/8	7 3/8	13 1/8	12 5/8	12 1/4	- 3/8	- 3.06
Management Assistance	24 3/8	10 1/8	13 3/8	13 3/4	12 1/8	+ 1/4	+ 3.06
Memorex	224	63	208	212	202	+ 6	+ 2.97
Optical Scanning Corp.	102	35 3/4	102	104	92	+10	+10.86
Recognition Equipment Corp.	190	48 1/2	190	195	166	+24	+14.46
Systems Engineering Labs	61 1/4	8 7/8	60	61	63	- 3	- 4.76
University Computing Co.	233	65	214	217	198	+16	+ 8.08

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New 300 cps Paper-Tape Terminals Are Using ICs

ALBERTSON, N.Y. – Digitronics has announced two new Dial-o-verter terminals with integrated circuits, the Model 5072 combined paper tape transmitter/printer receiver terminal and the Model 5079 transmit/receive paper tape terminal. Both equipments use reverse channel techniques for high efficiency operation.

Five to Eight-Level Code

The Model 5072 uses a type 202C data set on the dial telephone network and a type 201B or Rixon Sebit 48 data set on leased lines and can handle all EIA standard five- through eight-level punched paper tape codes, at speeds up to 300 characters/second. The receiver terminal prints data at up to 300 lines/minute.

It may also be operated off-line to convert punched paper tape to printed copy. Options available include a tape handler for accomodating reel-wound paper tape, vertical tab, horizontal tab, and fully unattended operation. The monthly rental of the Model 5072 is $750.

Dial-o-verter Model 5079 provides two-way communication for all five- through eight-level paper tapes conforming to EIA Standards. The Model 5079 is compatible with the type 202C data set and also the 201B data set. Data is transmitted at rates of up to 300 characters/second and received at 100 characters/second.

Blocks of any size are accomodated for higher throughput rates. Options available for the Model 5079 include: tape handler for reel-wound paper tape, punch tape winder, and controls for unattended operation

It may also be operated off-line to copy punched paper tape. The monthly rental of the Model 5079 is $300.

BankAmericard 360 Program Converted

The completion of a major project for BankAmericard has been announced by Computer Usage Development Corporation's San Francisco office. The project, directed by Russ Turner, Staff Analyst, called for a vital change in the original BankAmericard system that makes the new system available to medium size banks throughout the nation. The original system, which ran under OS for large scale IBM System/360's, has been modified to utilize smaller core sizes and operate under 360 DOS.

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NCR Adds Displays To 315 Line In Big Deal With Sanders

NCR has added display capabilities to their 315 line, with a multimillion dollar agreement which was announced this week. Under the new agreement Sanders Associates will modify one of their standard display units to fit the 315 interface, and supply the units to NCR. Deliveries will start in January, and prototypes are already in operation.

It was said that NCR has specifically chosen Sanders CRT equipment because it offers the feature of a sophisticated logic for editing and updating computer-stored information.

The NCR 795 will be available for a wide variety of applications, such as retailing, banking, and insurance. Effectively, its television-like characteristic allows actual pages of computer stored information to be flashed on a screen for immediate use.

Consequently, the display operator is provided with a keyboard fashioned after the typewriter, by which he may request information directly from the computer's memory, and subsequently be enabled to add, delete, edit or update this information while concurrently viewing it on the screen.

An industrial firm may therefore use this method to obtain data on the inventory record of a specific item. It similarly enables the retail firm to learn quickly the credit status of customers, while bank employees can determine account balances, etc. Management may additionally benefit from the computer's efficiency, and in this manner receive reports on budget status, expense analysis, production reports, etc.

The NCR 795 Data Display System can be interfaced with any of NCR's 315 family of computers. This includes the regular 315 series, 315-100 series, and the 315 RMC (Rod Memory Computer) series. Interface with 315 computers can be direct without the need for data sets when installations do not require distantly remote facilities. At remote locations a controller is employed for handling up to twelve display units. All communications are time-shared, permitting programs to be processed in the background.

The NCR 795 is more than an entry-retrieval computer device. It also allows entry through a keyboard to correct and update computer-stored data. Insertion and deletion functions enable new information to be added and outdated data to be erased at any point in the displayed text. With such input and output capability, it can be termed a conversational display terminal.

The data display system employs a logic/memory structure which organizes data into the most compact arrangement for storage in the system memory and permits greater flexibility in positioning data on t screen. Spaces and format cont characters such as horizontal tab, carriage return, and vertical tab require only one memory space for their particular function, regardless of the number of spaces or lines left blank on the screen. This featurn provides an effective increase of fifty percent or more in the quantity of data which can be displayed.

Sanders Associates will furnish NCR with five major components: 1. Display Controller, 2. Memory Module, 3. Display Controller Cabinet, 4. Display Screen, and 5. Display Keyboard. First customer deliveries by NCR are scheduled for January.

EDP industry report
355 WALNUT STREET / NEWTONVILLE, MASS.

A Comprehensive Computer Census Is Available

EDP Industry Report is now the exclusive source for the comprehensive Monthly Computer Census prepared by the International Data Corporation (IDC), which publishes the newsletter. The tabulation, which has appeared in the past in *Computers and Automation*, is made possible through an extensive market information gathering and research program conducted by IDC's research staff.

Computer manufacturers, virtually without exception, do not officially release information about installations or unfilled orders. Thus, reliable secondary sources of this market information must be developed. And IDC, during the past four years, has developed proven data collection and analysis techniques techniques that produce each month the computer census commonly acknowledged by those inside the computer industry to be *the most timely and consistently reliable picture* of the total computer market.

The monthly census is just one of the items of market intelligence you'll find in **EDP Industry Report** – the newsletter published by IDC for executives concerned with the data processing industry. **EDP/IR** publishes information that is vital to the man whose future or fortune is affected by the computer field. It features user surveys, *investment facts, analysis, industry statistics,* and *news* — not a miscellaneous collection of unrelated press releases but news assimilated so that it is meaningful.

Published twenty-four times a year, **EDP/IR** is available for $49.50 a year. Just drop us a note for a sample issue. Or mention COMPUTERWORLD when you send us your subscription order, and you'll receive a free copy of the valuable *Computer Industry Review and Forecast* issue – a fact-filled document that is the most-quoted publication in the EDP industry.

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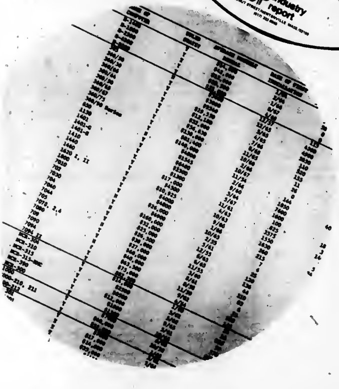

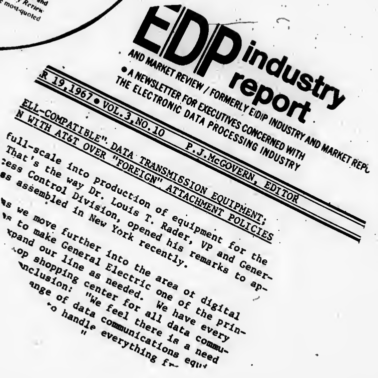

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R 19,1967 • VOL.3,NO.10 P.J.McGOVERN, EDITOR
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